

REDISCOVERING THE FIRTH OF FORTH BELUGA

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The beluga, *Delphinapterus leucas* (Pallas), is an Arctic cetacean, which has been recorded rarely in Britain from sightings and strandings (Barclay & Neill, 1821; Fraser, 1934, 1974; Evans, 1991, Flower, 1880; Millais, 1906; Turner, 1912). Records of strandings from Scotland comprise two young males that were stranded in August 1793 east of Thurso in the Pentland Firth, a specimen at Auskerry, Orkney in October 1845, a specimen near Dunrobin, Sutherland in June 1879, another at Wick in 1884 and finally one near Stirling in the Firth of Forth in October 1932.

There is an earlier record of a beluga in the Firth of Forth, where an animal was frequently observed for about three months in 1815 in between Alloa and Kincardine (Barclay & Neill, 1821). It swam upstream on the incoming tide and downstream on the ebb. Many attempts were made to kill it before it succumbed eventually to the firearms and spears of salmon-fishers on 6th June 1815 at the Abbey of Cambuskenneth, Stirling while in the pursuit of salmon. The animal was purchased by Robert Bald, who sent it to Professor Jameson in Edinburgh, having saved it from going to Glasgow (!) or being "cut to mince-meat for a soap-work".

This beluga was described by Neill and dissected by Barclay (Barclay & Neill, 1821). The animal was a male and measured 13 feet 4 inches (4 metres) in a straight line. This specimen was supposedly the source of a skin that was mounted for display in the Natural History Museum of the University of Edinburgh (Evans, 1892). Unfortunately, this stuffed beluga appears to have been disposed of by the Royal Scottish Museum in the early 1950s.

However, close examination of Barclay & Neill (1821) reveals that it was highly unlikely that this specimen's skin could have been prepared for display. Neill described the soft parts as "quickly passing into a state of putrefactive fermentation" and Barclay regretted that his dissection was very incomplete because of the "putrid state of the body, and the shortness of time which I had to examine it". Plate XVIII (Barclay & Neill, 1821) shows that extensive areas of skin had apparently been cut away to allow Lizars to sketch the viscera *in situ*, although this could have been artistic licence. Barclay also described putting pieces of the skin into spirit, which hardly seems consistent with saving its skin for a museum display.

Curiously, no mounted specimen of beluga is recorded in the registers of the National Museums of Scotland (NMS) and its predecessors. Therefore, it is unclear from where the stuffed beluga originated. It is possible that Evans (1892) inadvertently linked the story of the Firth of Forth

beluga with the stuffed specimen in the Edinburgh Museum of Science and Art (now NMS).

All that appears to have been preserved from the Firth of Forth beluga was the skull, vertebral column and ribs of the skeleton (Barclay and Neill, 1821, p. 388). However, the whereabouts of this skeleton is unknown. It could have been in the collection of the Royal College of Surgeons in Edinburgh, where Barclay was based. However, much of Barclay's collection was destroyed in the 1960s and no beluga skeletons survive there today.

Today NMS's collections contain three beluga skulls (Herman, 1992). Two of these are of Arctic origin, but one (register no. NMSZ1956.36.54) lacks data and originated from the Turner Collection in the Anatomy Department of Edinburgh University (Turner, 1912; register no. C.Dpt.1.1). Turner's (1912) only comment about this skull was that it was from the Monro Collection. Herman (1992) erroneously recorded this skull as being from a female, but it is unsexed.

We compared the published measurements of the skull above (Turner, 1912) with those of the Firth of Forth beluga (Barclay & Neill, 1821). Although the skull widths matched (i.e. 11 inches [=279 mm]), the length of the Turner/Monro specimen was one inch shorter (i.e. 20 inches compared with 21 inches [=508 mm compared with 533 mm]). However, we re-measured the Turner/Monro skull and found that it was exactly the same length as the Firth of Forth specimen (Barclay & Neill, 1821). This suggested that the Turner/Monro specimen could be the lost Firth of Forth beluga.

Other evidence to support this view comes from damage caused to the skull, presumably during the dissection. For example, Barclay noted that "I once observed the front teeth in the lower jaw, but before we proceeded to the dissection, some person had secretly extracted them". The teeth are absent from the mandible of the Turner/Monro skull and the alveoli are covered in as much soot from gas lamps as the rest of the mandible, suggesting that they have always been missing since the specimen was prepared. The cranium has been crudely split in two, with saw marks still evident on the right hand side. Barclay did attempt to look at the brain, but found "The brain was putrid".

Taking the skull measurements, the missing teeth and damaged cranium together, it is highly suggestive that the Turner/Monro beluga skull is that of the missing Firth of Forth beluga. Other specimens from the Turner collection are known to have originated from the Royal College of Surgeons, so the transfer of the skull to the Anatomy Department is not unusual. However, a mystery remains – the location of the rest of the skeleton.

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